

# Project Fact Sheet

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## *Integrated Wastewater Management System*

### **GOALS**

- Develop and demonstrate integrated wastewater management systems in California livestock operations.
- Increase water recycling
- Improve animal herd health and food safety
- Reduce environmental pollutant discharge



**Pilot Testing of Two-Stage Aerobic Sequencing Batch Reactors**

### **PROJECT DESCRIPTION**

This research will optimize the aeration process to achieve biological nutrient (ammonia) nitrification and denitrification removal from liquid manure. The research will also improve the solid-liquid separation process to remove organic and inorganic matter from the liquid manure. This research has the potential impact of reducing 46 tons/day of ammonia emission from the dairy industry and improving solid-liquid separation by 70%. The project needs to demonstrate the commercial feasibility of both of these technologies and to assess the cost effectiveness and energy budgets for the processes. At the completion of this task the researchers expect the technology to be ready for commercialization.

### **BENEFITS TO CALIFORNIA**

Potential energy benefits to be gained from this research are 255.5 million kWh/yr. saved as a result of more efficient aeration systems for the wastewater treatment system when applied to the more than 1000 dairy operations in California. Similar energy efficiency benefits can also be derived from swine and egg producing farms using the same technology. Environmental benefits will result from reduced ammonia emissions.

## **FUNDING AMOUNT**

**California Energy Commission: \$163,560**

## **PROJECT STATUS**

- Field-testing of aeration systems was initiated at the end of May 2002, at S&S Dairy in Tulare. The farm offers a representative, contemporary wastewater management system on dairies in the State. The wastewater management system consists of a solid-liquid separator, a solids settling pond, two treatment lagoons and one storage lagoon, and irrigation. Two treatment lagoons have been divided into two halves to create two parallel treatment systems, one aerated and one not aerated, for evaluating the effect of aerobic treatment against the anaerobic treatment. Odor and water sampling are performed with two treatment systems on biweekly (for DO and Redox) and monthly (for odor and water quality) sampling and measurement.

## **FOR MORE INFORMATION**

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